An unusual new genus and a new species of Buccinulidae (Neogastropoda) from the Magellanic Province

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ABSTRACT

A new genus and species of the family Buccinulidae is described from the Southwestern Atlantic in Argentine waters. *Jerrybuccinum malvinense* new genus and species combines the conchological characters of Fasciolariidae with the radula of Buccinulidae.

Additional keywords: Gastropoda, southwestern Atlantic, *Jerrybuccinum malvinense*, new genus, new species

INTRODUCTION

The intensive collecting efforts of the United States Antarctic Program (USAP) in the Antarctic and Magellanic regions yielded rich collections, which stored at the National Museum of Natural History, Smithsonian Institution.

These collections have been the source of a vast number of new species of mollusks described in several papers and monographs (e.g. Dell, 1990; Harasewych and Kantor, 1999; Pastorino, 1999; Harasewych et al., 2000; Pastorino and Harasewych, 2000; Pastorino, 2002; Harasewych and Kantor, 2004; Harasewych and Pastorino, in press). There remain to be studied, however, a number of species with novel combinations of anatomical features and shell morphology. One of the new species collected off the Falkland Islands (Islas Malvinas) demonstrated the unusual combination of a fasciolariid-looking shell with a buccinulid radula.

In this paper we describe as new a species that possesses radular and conchological characters that preclude its inclusion into any presently recognized genus of Buccinoidea.

MATERIALS AND METHODS

The specimens here described are housed in the collection of the National Museum of Natural History, Smithsonian Institution, Washington, DC (USNM). They were collected by R/V Eltanin. The shells with dried-out bodies were re-hydratated to facilitate dissections. After cleaning with diluted bleach, air-dried, mounted on glass slides, and coated with gold-palladium radulae were studied with help of a scanning electron microscope at USNM. Most photographs were taken using a digital camera. All images were digitally processed.

SYSTEMATICS

Class Gastropoda Cuvier, 1797
Order Neogastropoda Wenz, 1938
Superfamily Buccinoidea Rafinesque, 1815
Family Buccinulidae Finlay, 1928

Genus *Jerrybuccinum* new genus

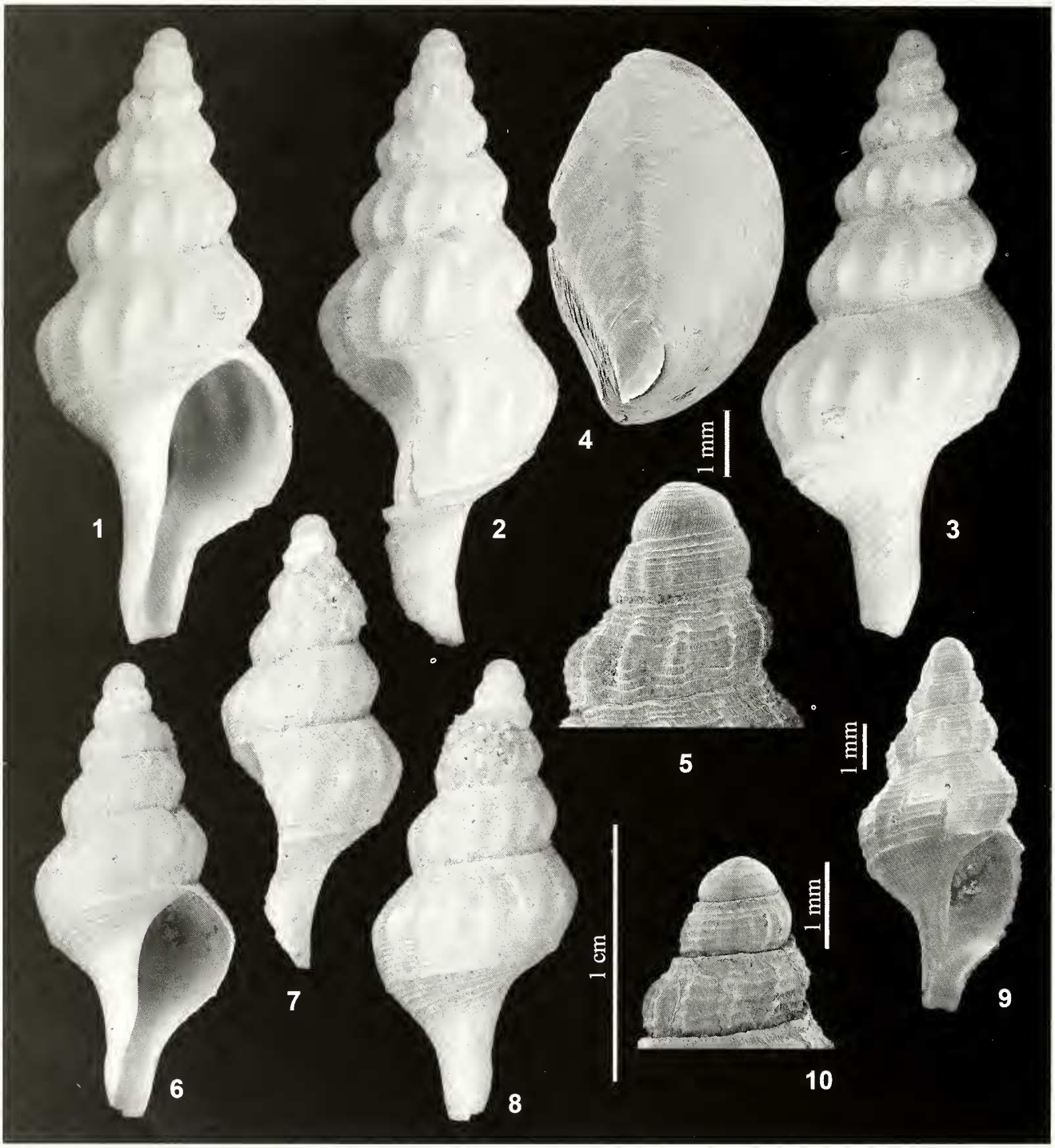
Type Species: *Jerrybuccinum malvinense* new species, by original designation. (Currently the only species included into the new genus is the type species.)

Description: Shell fusiform, with tall spire and long attenuated siphonal canal. Protoconch paucispiral, ornamented by spiral threads and closely spaced axial ribs; protoconch-teleoconch transition very weak, marked by the appearance of the axial folds. Spiral sculpture of low and narrow spiral ribs, raised, and rounded on the top keel that delimitates the shell base. Axial sculpture of growth lines and high, closely spaced axial folds. Radula triserial, with rectangular unicuspid rachidian teeth and tricuspid lateral teeth with long, stout basal plates.

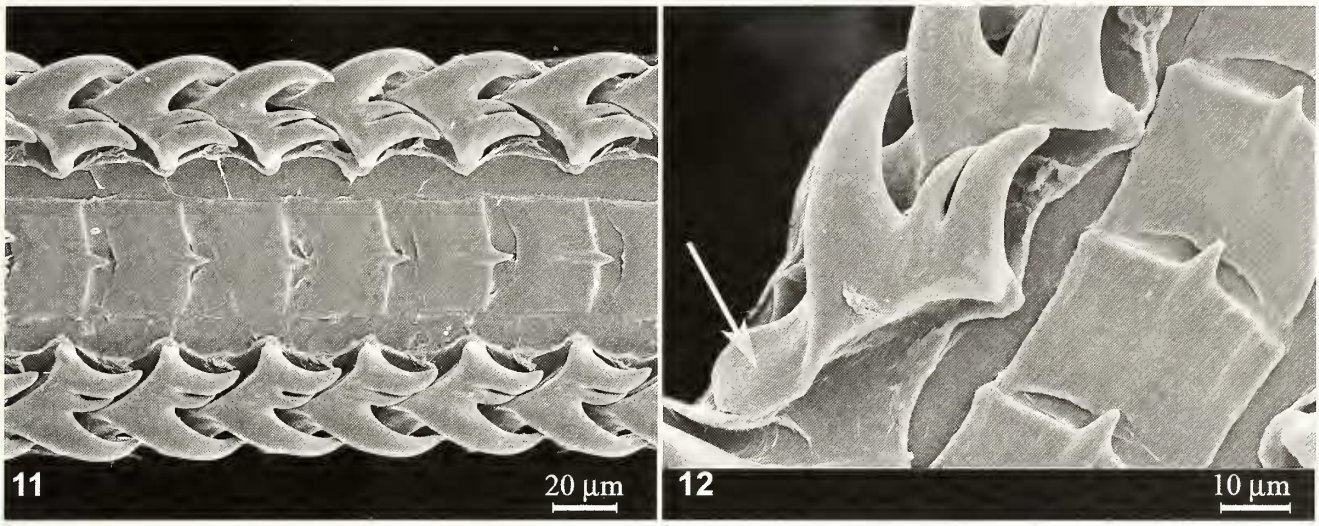
Etymology: The genus is named after our colleague and mutual friend Miroslav (Jerry) Harasewych, curator of mollusks at the National Museum of Natural History, Smithsonian Institution.

Jerrybuccinum malvinense new species
(Figures 1–12)

Description: Shell strong, fusiform with tall spire and long attenuated siphonal canal, of 2.5 protoconch and slightly over 5 teleoconch whorls. Protoconch paucispiral, evenly rounded (Figure 5), ornamented by 5 unevenly spaced spiral threads and closely spaced thin, but



Figures 1–10. *Jerrybuccinum malvinense* new speeies. **1–5.** Holotype, USNM 898847, Falkland Islands (Islas Malvinas), 52°00' S, 56°36' W, R/V Eltanin, cruise 7, sta. 558, 14 Mar. 1963, 646–845 m. **1–3.** Shell. **1.** Apertural view. **2.** Lateral view. **3.** Dorsal view. **4.** Operculum. **5.** Protoconeh. **6–8.** Paratype, USNM 898774. Falkland Islands (Islas Malvinas), W of Beauehene Island, 53°06' S, 59°24' W, R/V Eltanin, cruise 6, sta. 340, 03.12.1962, 567–578 m. **6–8.** Shell. **6.** Apertural view. **7.** Lateral view. **8.** Dorsal view. **9–10**. USNM 887765, off Cape Horn, 56°06' S, 66°19' W, R/V Eltanin, cruise 9, sta. 740, 18 Sep. 1963, 384–494 m, shell length = 8.1 mm. **9.** Apertural view of the shell. **10.** Protoconch. Figures 1–3 and 6–8 at same seale, scale bar = 1 em. Figures 4, 5 at same seale, seale bar = 1 mm.



Figures 11–12. Radula of *Jerrybuccinum malvinense* new species. **11.** Dorsal view of the central portion of the radular membrane. **12.** Bending plane of the membrane. The basal projection of the lateral tooth is marked by an arrow.

distinct, axial ribs. Protoconch-teleoconch transition not clear, marked by appearance of axial folds. Protoconch diameter around 2.1 mm, exposed protoconch height 1.75 mm. Teleoconch whorls strongly convex, slightly angulated at periphery, separated by shallow, slightly adpressed suture. Spiral sculpture of sharp, low, and narrow spiral ribs, separated by slightly wider interspaces. Twenty-two ribs on penultimate whorl, upper one adjoining suture, slightly wider than other ribs. Last whorl with raised keel, rounded in cross-section. Last whorl with 23 ribs above keel that delimits shell base, ribs below keel more pronounced, 28 in total on shell base and canal. Axial sculpture of raised growth lines that produce reticulated structure while crossing spiral ribs and high, closely spaced axial folds, 13 on body whorl and 13 on the penultimate whorl. Folds protrude from suture to suture on spire whorls and from suture to keel on the last whorl. Aperture wide, oval, constituting 0.34 of shell length (without siphonal canal). Outer lip evenly rounded and slightly reflected outward. Inner lip with narrow callus extending to parietal wall. Siphonal canal well defined, long, constituting about 0.17 of shell length, slightly curved to left but not crossing shell axis. Shell covered by thin, light-yellow periostracum. Shell color under periostracum uniform off-white.

Operculum ovate (Figure 4), elliptic, with subcentral nucleus, external surface covered by concentric growth lines where new growth partially overlap old ones, resulting in lamellose surface, particularly on internal margin. (Measurements as in holotype.)

Radular ribbon (Figures 11–12) long (2.98 mm, 0.36 AL), narrow (~130 µm), triserial, consisting of 90 rows, most posterior 9 rows nascent. Rachidian teeth narrow (~40 µm), with anteriorly very slightly arched rectangular basal plate and single sharp cusp. Lateral teeth with long, stout basal projection (marked by an arrow on Figure 12), attached at acute angle (~50°) to axis of radular ribbon, with 3 cusps, outer largest and central shortest situated closer to the inner cusp.

Type Material (Figures 1–8): (Measurements in Table 1) Holotype (Figures 1–5), USNM 898847, Falkland Islands (Islas Malvinas), 52°00' S, 56°36' W, R/V Eltanin, cruise 7, sta. 558, 14 Mar. 1963, 646–845 m. Paratype (Figures 6–8), USNM 898774, Falkland Islands (Islas Malvinas), W of Beauchene Island, 53°06'S, 59°24'W, R/V Eltanin, cruise 6, sta. 340, 12 Mar. 1962, 567–578 m.

Type Locality: Falkland Islands (Islas Malvinas), 52°00' S, 56°36' W, R/V Eltanin, cruise 7, sta. 558, 14 Mar. 1963, 646–845 m.

Other Material Examined: Two specimens (USNM 887765) (Figures 9–10) collected off Cape Horn, 56°06' S, 66°19' W, R/V Eltanin, cruise 9, sta. 740, 18 Sep. 1963, 384–494 m.

Remarks: The paratype (Figures 6–8) is a slightly smaller specimen, otherwise in all respects it is similar to holotype. One additional juvenile, a dead-collected specimen (shell length = 8.1 mm) (Figures 9–10) is rather similar in shell sculpture and outline to the types, but

Table 1. Shell dimensions of the holotype and paratype of *Jerrybuccinum malvinense* new species, measurements in mm.

	Holotype	Paratype
Shell length	24.1	17.8
Body whorl length	15.1	12.0
Aperture length	8.3	6.0
Shell diameter	10.2	7.9
Siphonal canal length	4.3	3.6

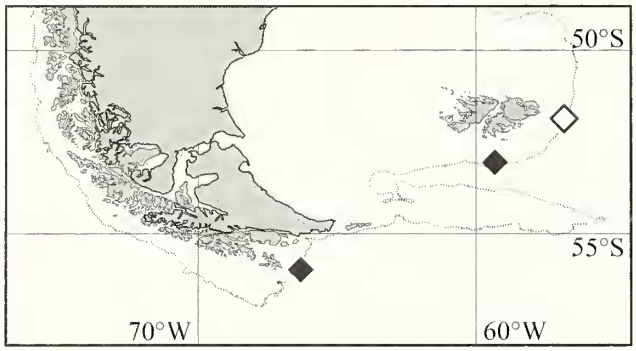


Figure 13. Geographical distribution of *Jerrybuccinum malvinense* new species. Dashed line indicates 500 m isobath. Symbols: ◊ = type locality, ◆ = other material examined.

differs in having a smaller protoconch (exposed height 1.12 mm vs 1.75 in holotype).

Distribution (Figure 13): The species is known off Falkland Islands (Islas Malvinas) at the depth 567–845 m and off Cape Horn in 384–494 m.

Etymology: The species is named after the type locality, Islas Malvinas (Falkland Islands.)

DISCUSSION

The radular characters undoubtedly place *Jerrybuccinum* in Buccinulidae, but the subfamilial allocation is not clear. The single cusp of the rachidian tooth and long basal projection of the lateral tooth suggest the affinities with the subfamily Cominellinae and particularly with the Antarctic species of "*Parenthria*", i.e., *P. plicatula* Thiele, 1912, *P. innocens* (Smith, 1907), and *P. hoshiaii* Numanami, 1996 (see Numanami, 1996). Harasewych and Kantor (2004) observed that the Antarctic representatives of this genus differ markedly in radular morphology from those of Magellanic distribution, including the type species *Parenthria plumbea* (Philippi, 1844), which has a tricuspid rachidian tooth. In any case, in contrast to the condition found in *Jerrybuccinum*, all representatives of Cominellinae have the bicuspid lateral teeth.

The shell in the new species does not have analogues among Antarctic and Subantarctic Buccinulidae. It shows some resemblance to representatives of Fasciolariidae, mostly due to the long and nearly straight siphonal canal and characteristic axial sculpture. Thus, on first approach, *Jerrybuccinum malvinense* appears to combine characters of both families.

ACKNOWLEDGMENTS

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